WORKING GROUP MEETING
THURSDAY FEBRUARY 1, 2001

SWANSEA RECREATION CENTER
2659 EAST 49TH AVENUE
9:00 AM-1:00 PM

BACKGROUND & OBJECTIVES:

In July, 2000, EPA released a draft Human Health Baseline Risk Assessment for Operable Unit 1 of the VB/I70 Site to the VB/I70 working group members and requested their review and comment. Over the last several months, EPA has been developing responses to comments received and modifying the document as appropriate.

The revised document incorporates new soils data. At the time the draft risk assessment was released, the "Phase IIIB" soil sampling program was ongoing. Phase IIIB was completed in September, 2000. This data has now been incorporated into the final risk assessment calculations.

Arsenic and lead are the contaminants of concern for Operable Unit 1. Revised arsenic risk calculations have been completed. Revised lead risk calculations have not yet been completed.

EPA's objective for this working group meeting is to present revised risk calculations for arsenic and to provide information on the status of lead risk assessment and other Operable Unit 1 activities.

ORIGINAL

PROPOSED AGENDA ITEMS

1. Community Issues **(9:00 - 10:00)**

2. Lead Risk Assessment **(10:00-10:30)**

In October, 2000, EPA initiated a study on the bioavailability of lead in site soils. The results of that study are pending. Also, CDPHE has offered to provide biomonitoring data which may be useful in assessing lead risks. EPA will provide the working group with a summary of Phases IIIA and IIIB results and the status of these other efforts.

BREAK **(10:30-10:45)**

3. Arsenic Risk Assessment **(10:45-11:45)**

EPA revised the arsenic risk calculations to respond to comments. A summary of the results will be presented to the working group.

- Phase IIIA and IIIB Results
- Revision of the relative bioavailability estimate for arsenic in site soils
- Cancer risks from chronic exposure
- Non-cancer risks from short term exposure

4. ATSDR Activities **(11:45- 12:05)**

5. Ongoing Operable Unit 1 Activities **(12:05 - 1:00)**

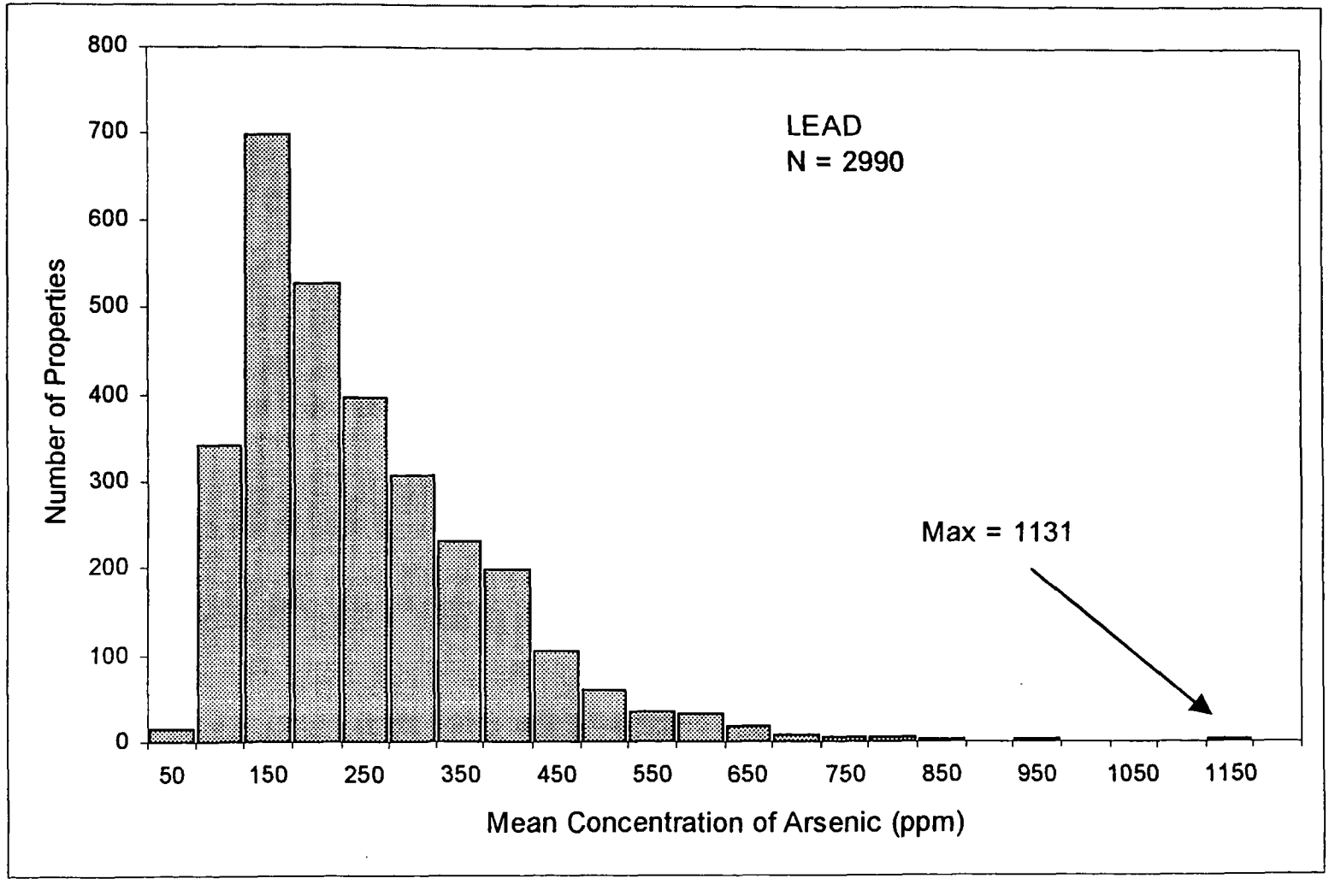
- Completion of the Remedial Investigation/Feasibility Study
- Efforts to identify source(s)
- Consideration of Environmental Justice in the Clean up Decision

VBI70
WORKING GROUP
BRIEFING

02/01/01

EXPOSURE AND RISK FROM LEAD

DISTRIBUTION OF PROPERTY MEAN LEAD CONCENTRATIONS IN PHASE III SOILS



PENDING DATA

Needed before risk assessment can be finalized

- Site-specific RBA for Lead

  (Results are imminent)

- Site-specific GSD (??)

  (Based on limited data to be provided by the State)

- Site-specific relation between soil and blood lead (????)

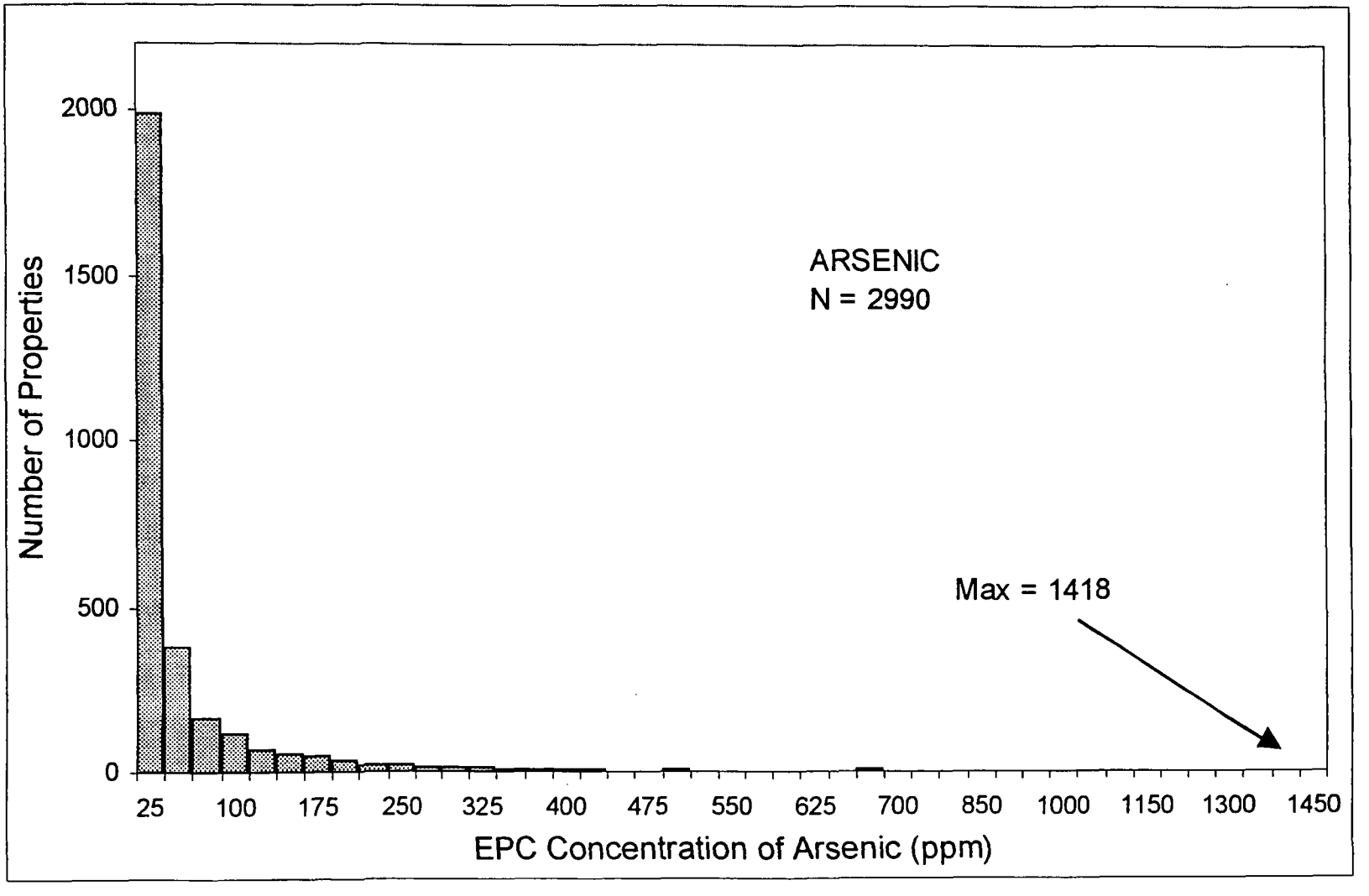
  (Based on soil data from EPA and blood lead data to be provided by the State)

LEVELS AND RISKS FROM ARSENIC

Cancer Risk from Chronic Exposure

Non-cancer Risk from Short-term Exposure

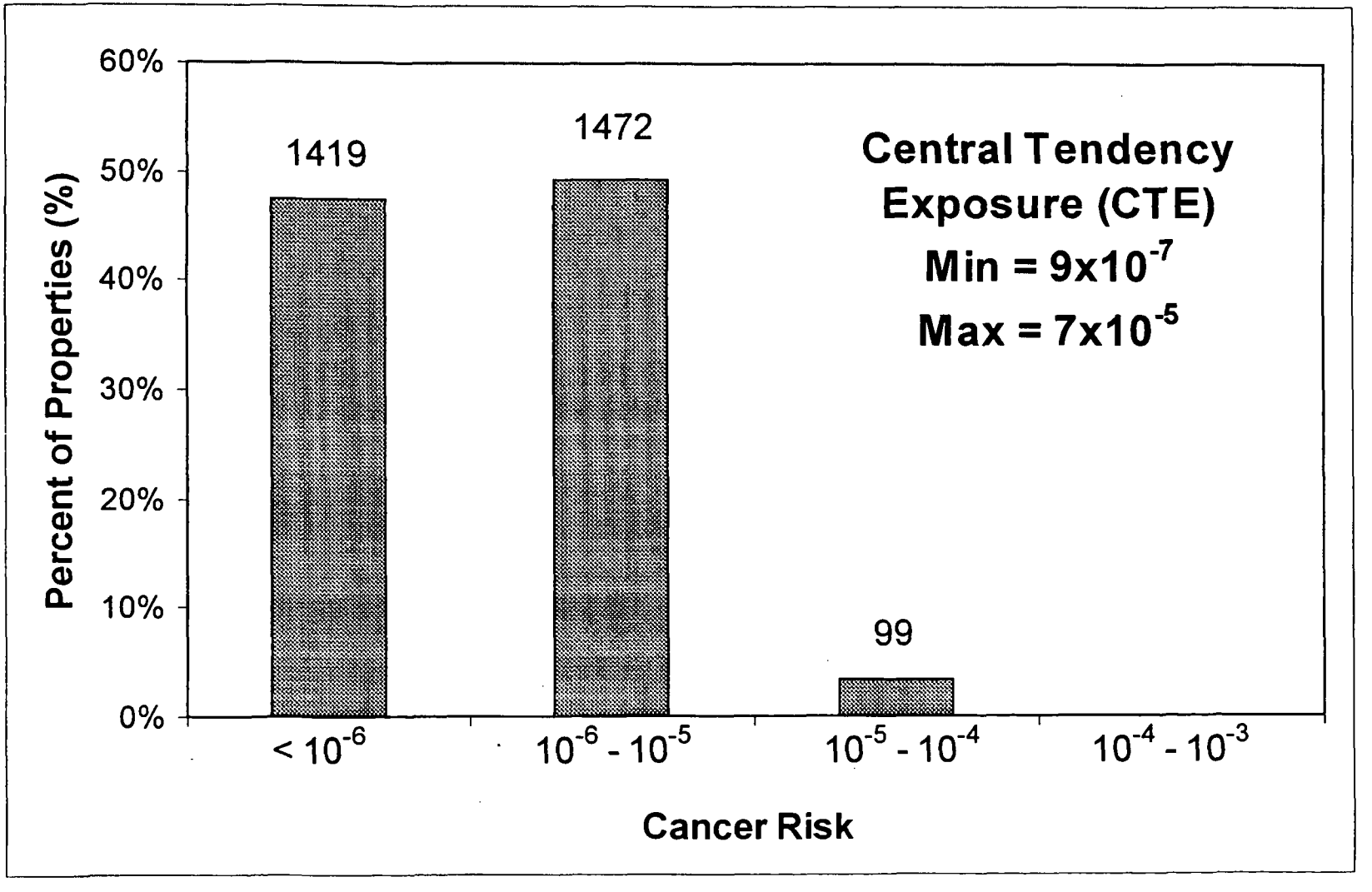
DISTRIBUTION OF ARSENIC EXPOSURE POINT CONCENTRATIONS (EPCs) IN PHASE 3 SOILS



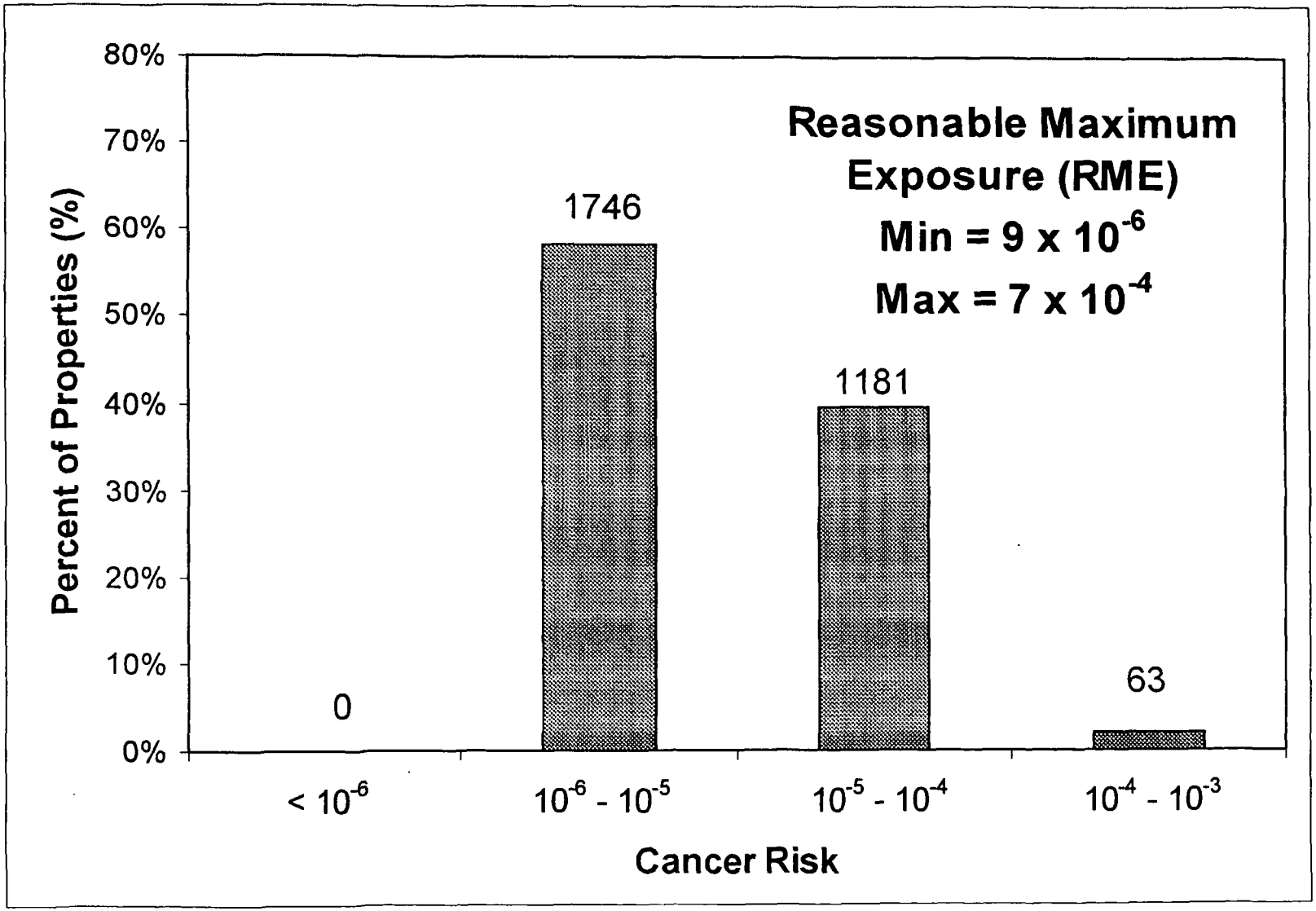
REVISED RBA DATA FOR ARSENIC

Test material	OLD	NEW
TM-1	0.37	0.35
TM-2	0.43	0.45
TM-3	0.37	0.36
TM-4	0.58	0.21
TM-5	0.18	0.18
Mean	0.39	0.31
95% UCL	0.52	0.42

CANCER RISKS
FROM CHRONIC ARSENIC EXPOSURE



CANCER RISKS
FROM CHRONIC ARSENIC EXPOSURE



EVALUATION OF SHORT-TERM NONCANCER RISKS TO RESIDENTS FROM ARSENIC IN SOIL

Sub-chronic	(e.g., several months to several years)
Sub-acute	(e.g., several weeks)
Acute	(e.g., 1-2 doses)
Acute-Pica	(1 dose, high soil intake)

HQ = Site Dose compared to Safe Dose (RfD)
Site Dose = C * IR/BW *RBA
Safe Dose = RfD

Parameter	Case 1	Case 2	Case 3 (ATSDR recommended)	Case 4 (Worst Case Default)
BW (kg)	12.3	12.3	10	10
IR (grams)	10	5	5	10
RfD (mg/kg-d)	0.005	0.02	0.005	0.005
RBA	0.4	0.4	?	0.8

Used for VBI70

NOTE: The concentration term is the maximum in the yard, not the mean or UCL

CALCULATION OF MTHC

THC = "MAXIMUM THEORETICAL HOTSPOT CONCENTRATION"

ach Phase 3 sample is a 10-point composite

orst Case Scenario:

9 samples at background are mixed with one sample from a hotspot

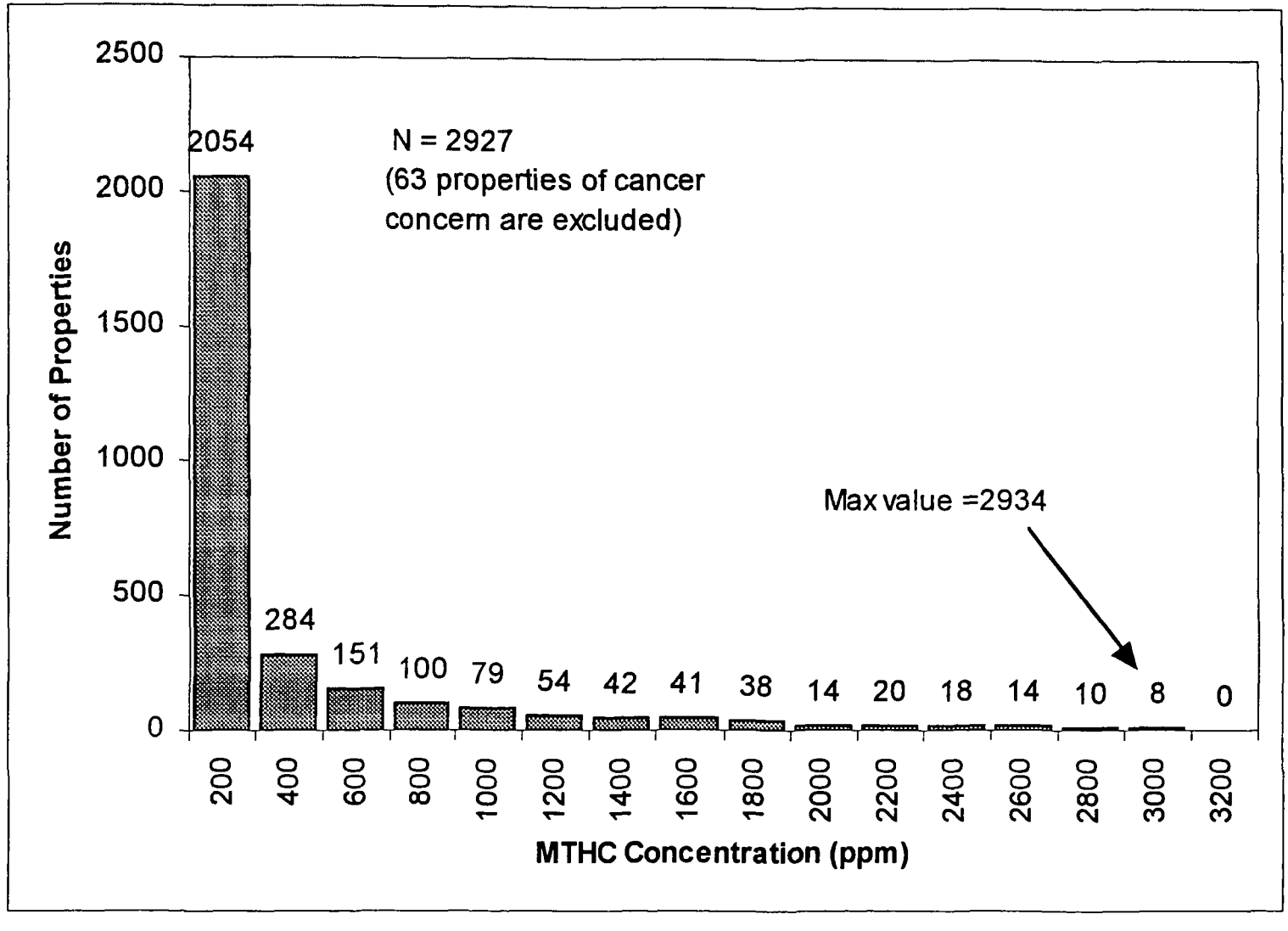
Then

Composite = (9*Background + 1*Hot spot) / 10

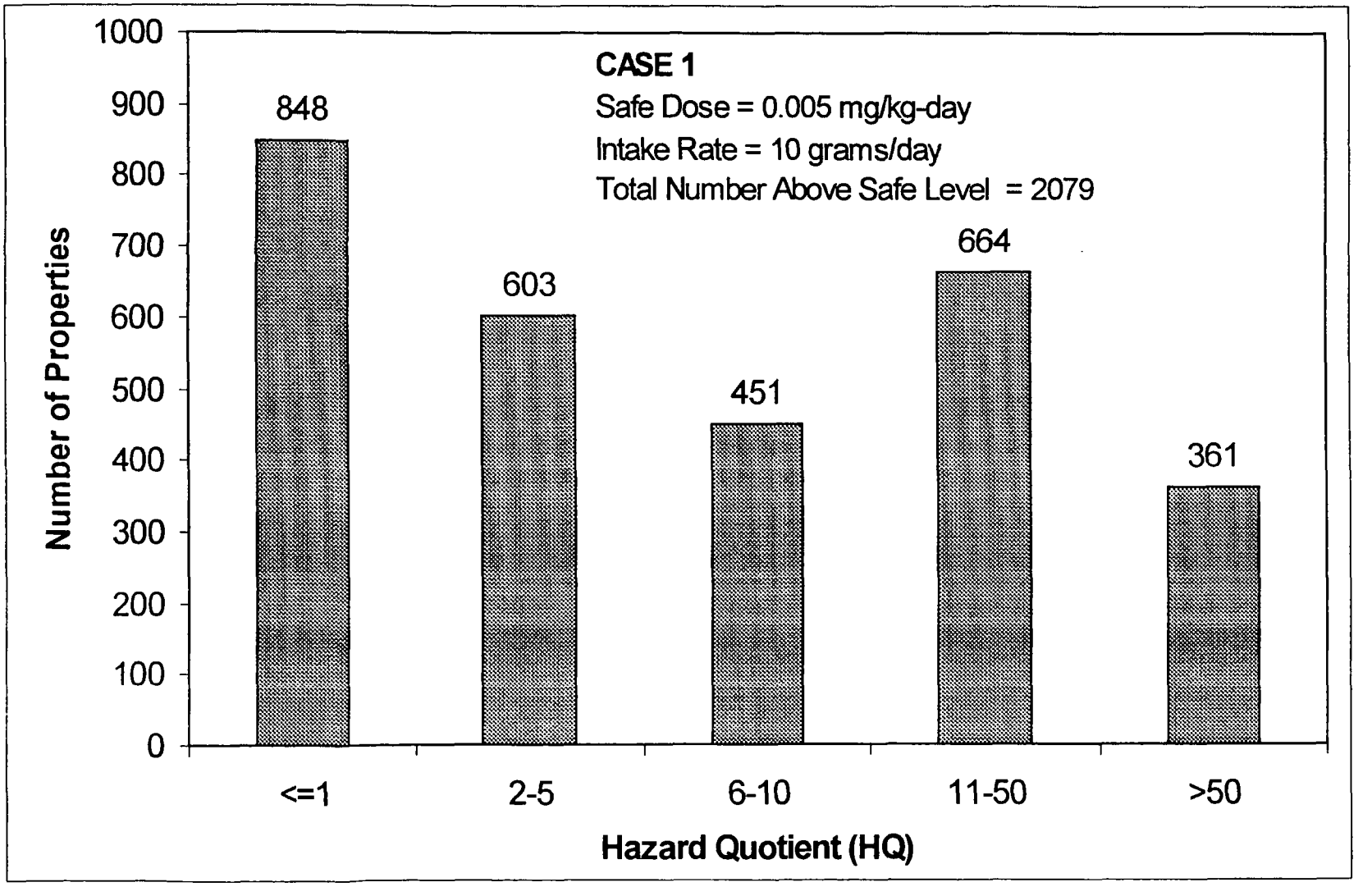
hus, the MTHC is:

MTHC = 10*Composite - 9*Background

DISTRIBUTION OF ARSENIC MTHC VALUES



ACUTE ARSENIC NON-CANCER RISKS FROM SOIL PICA BEHAVIOR



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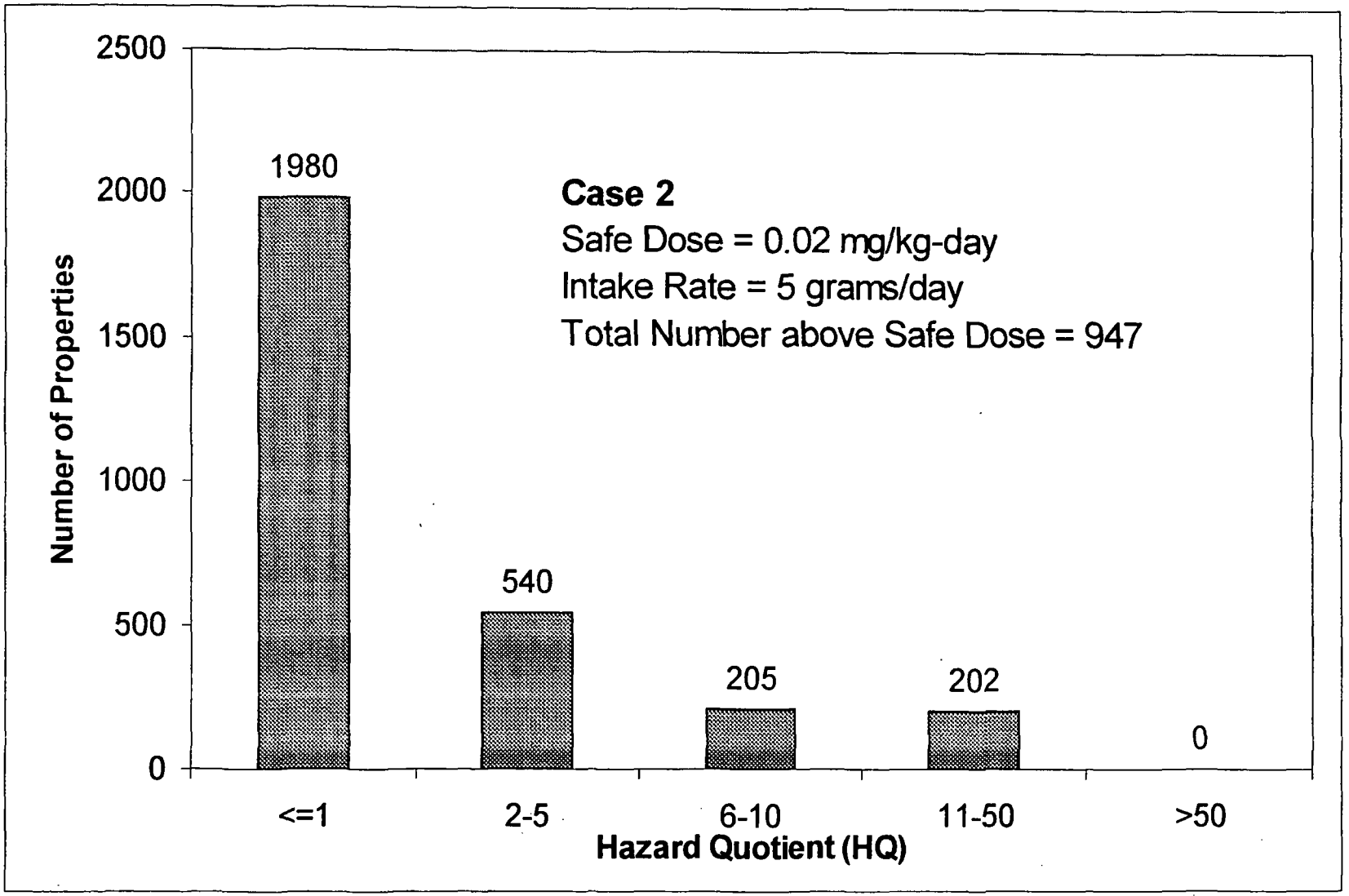

POTENTIAL RISK MANAGEMENT STRATEGIES FOR ACUTE RISKS

HEALTH EDUCATION

- Provide information to residents about potential risks and health effects associated with soil pica behavior.

- Provide advice on how to recognize and prevent soil pica behavior.

- Establish a biomonitoring program to evaluate exposure.

POTENTIAL RISK MANAGEMENT STRATEGIES FOR ACUTE RISKS

OBTAIN BETTER DATA

- Declare that acute arsenic risk calculations are not reliable and that studies on pica incidence are needed to get more reliable risk estimates
- Until appropriate studies are completed, provide health education and biomonitoring
- When appropriate risk calculations can be done, re-sample locations where RELIABLE calculations predict unacceptable risks based on the MTHC
- Remediate soil as appropriate

POTENTIAL RISK MANAGEMENT STRATEGIES FOR ACUTE RISKS

REMEDIATE WORST CASES

- Declare that even though there is uncertainty, acute risks above some level (e.g., HQ>20?) are likely to be of concern
- Re-sample where the HQ exceeds the level of concern to obtain a better estimate of the maximum concentration in the yard
- Remediate as appropriate
- Continue to work to improve risk calculations and follow previous approach